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ABSTRACT

This guide is intended to assist vocational educators teaching a course in construction to relate the skills addressed in science courses to a particular vocational education course. The guide consists of a curriculum alignment chart that cross-references vocational performance indicators to science skills/competencies. The science competency indicators presented for each vocational education performance indicator are broken down according to science course and grade level. Selected teacher helps, including student exercises, suggested learning activities, and listings of recommended instructional materials, are also provided for each performance indicator listed in the curriculum alignment chart. (MN)

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 012 01. Describe the construction process which explains the assembly or erection of a non-movable structure on a given sight.	012 Define construction technology. SKILLS: Describe List Explain	ELEMENTARY SCIENCE Grades 4-6 (Matter and Energy) 22.01 List sources of heat for home heating 22.02 List ways to save on home heating 22.03 Explain how homes may be kept comfortable (cooler) during hot seasons through air conditioning and/or the use of insulation materials and strom doors and windows 24.01 Describe methods of conserving energy such as insulating, adjusting thermostats, and wearing more clothes in winter 28.03 Describe how some simple machines are used in everyday life (Earth and Space) 4.01 Describe the three basic rock types found in the earth: sedimentary, metamorphic, and igneous PHYSICAL SCIENCE Grades 8-12 (Electricity and Magnetism) 10.01 List common electrical devices that convert electrical energy into heat and light energy 11.01 List five ways of conserving electrical and heat energy in a home, business, or school, etc.

VOCATIONAL EDUCATION COURSE Construction

012

INSTRUCTIONS TO TEACHER: The multiple choice test item may have more than one correct answer; therefore, students should be instructed to select the most correct answer. For more information on construction technology, refer to The World of Construction by Lux and Ray, published by McKnight and McKnight Publishing Company, 1970.

INSTRUCTIONS TO STUDENTS: The following statement has four possible choices. Read the possible answers carefully and underline the best answer.

Construction technology is defined as: B

A. The planning, organizing, and controlling construction projects.

B. The assembly or erecting of structures at a site which cannot be readily moved after completion.

C. The activities of structuring and supplying a building organization.

D. Building structures out of wood.

INSTRUCTIONS TO TEACHER: For information on construction technology, refer to The World of Construction by Lux and Ray, published by McKnight and McKnight Publishing Company, 1970.

INSTRUCTIONS TO STUDENTS: Complete the following statement with the correct information.

Construction technology is defined as: The Assembly or erecting of structures at a site which cannot be readily moved after completion.

INSTRUCTIONS TO TEACHER: For more information on the definition of technology, refer to The World of Construction by Lux and Ray, published by McKnight and McKnight Publishing Company, 1970.

INSTRUCTIONS TO STUDENTS: Write in the spaces the missing parts of the construction technology definition.

Construction technology is the assmebly or erection of structures at a site which cannot be readily moved after completion.

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 016 01. Identify design factors such as: problem I.D., ideas, refinement, analysis, decision, implementation. 02. Define construction process.	016 Identify and describe the construction design process. SKILLS: Identify Describe Define List Measure	ELEMENTARY SCIENCE Grades 4-6 (Introduction to Science) 1.01 Suggest ways of finding a solution(s) of a given science problem by using a scientific method (Matter and Energy) 1.01 Make simple measurements in units of length, mass, and volume using the metric system units of measurement ELEMENTARY SCIENCE/ATTITUDES Grades 4-6 5.02 Demonstrate critical thinking and the use of scientific inquiry when given a scientific problem PHYSICAL SCIENCE/ATTITUDES Grades 7-12 2.02 Display an awareness that science is a process invented by people to solve human problems 4.01 Enjoy the challenge of formulating theories to explain observations 4.02 Show enthusiasm and interest when put into laboratory situation 4.03 Display enthusiasm for solving problems using experimental methods CHEMISTRY Grades 10-12 (The Science of Chemistry) 2.01 Plan experiments (purpose and procedure), carry them out safely (follow conduct and safety rules), interpret results (think and consult reference books), and communicate the results (tables, graphs, precise language) 3.02 Describe the physical properties of matter such as linear dimensions, volume, weight, mass, freezing point, malleability, shape, etc., through observation and experimentation

VOCATIONAL EDUCATION COURSE Construction

016

INSTRUCTIONS TO TEACHER: For information on the construction design process, refer to The World of Construction book by Lux and Ray published by McKnight and McKnight Publishing Company, 1970.

INSTRUCTIONS TO STUDENTS: Read the unfinished statement carefully and write the words that complete it correctly.

This test item concerns identifying and describing the design process.

A. The six steps in the construction design process are problem identification, beginning ideas, refinement, analysis, decision, and implementation.

B. The construction design process may be described as A systematic technique of developing a construction project.

INSTRUCTIONS TO TEACHER: For information on the design process, refer to The World of Construction book by Lux and Ray published by McKnight and McKnight Publishing Company, 1970.

INSTRUCTIONS TO STUDENTS: Read each question carefully and circle the most correct number choice under each test item.

This test item concerns identifying and describing the design process.

A. Which of the following design processes is the one most commonly used by designers? 3

1. Problem identification, decision, and implementation.
2. Beginning ideas, refinement, decision, and implementation.
3. Problem identification, refinement, analysis, and implementation.

B. Which of the following describes the construction design process? 1

1. A systematic technique of developing a plan for constructing a project.
2. Defining the design problem.
3. Evaluating, controlling, and scheduling the process.
4. Centering the design on a master plan.

INSTRUCTIONS TO TEACHER: For information concerning construction design process, refer to the following books:

1. The World of Construction by Lux and Ray published by McKnight and McKnight Publishing Company, 1970.
2. Exploring the World of Construction by Betts, Fannin, and Hauenstein published by McKnight and Mcknight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Read each question carefully and circle the correct number choices under each test item.

This test item concerns identifying and describing the design process.

A. Which of the following are part of the design process:

1. Problem identification
2. Function
3. Safety
4. Beginning ideas
5. Refinement
6. Cost
7. Appearance
8. Analysis
9. Decisions
10. Maintenance
11. Implementation
12. Drawings

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 017 01. List design factors to be considered when designing construction projects.	017 Identify design factors (function, safety, maintenance, appearance, and construction). SKILLS: Identify List Demonstrate Display Measure	ELEMENTARY SCIENCE Grades 4-6 (Introduction to Science) 1.01 Suggest ways of finding a solution(s) of a given science problem by using a scientific method 3.01 List ways that science is important to our economy (Matter and Energy) 1.01 Make simple measurements in units of length, mass, and volume using the metric system units of measurement ELEMENTARY SCIENCE/ATTITUDES Grades 4-6 5.02 Demonstrate critical thinking and the use of scientific inquiry when given a scientific problem PHYSICAL SCIENCE Grades 8-12 (Introduction to Science) 3.01 List major steps of a scientific method PHYSICAL SCIENCE/ATTITUDES Grades 7-12 2.01 Express a realization that scientific knowledge is essential to the welfare of our society which is so complex and dependent upon science 2.02 Display an awareness that science is a process invented by people to solve human problems

VOCATIONAL EDUCATION COURSE Construction

017

INSTRUCTIONS TO TEACHER: For information concerning design factors, refer to Exploring the Construction Industry by Betts, Fannin, and Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Read the following statement carefully and write the correct words in the spaces provided under the test item.

List five design factors that should be considered when designing construction projects.

1. Function
2. Safety
3. Maintenance
4. Appearance
5. Cost

INSTRUCTIONS TO TEACHER: For information on design factors, refer to Exploring the Construction Industry by Betts, Fannin, and Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Read the unfinished statement carefully and write the words that complete it correctly.

The five design factors that should be considered when designing construction projects are:

function, safety, maintenance, appearance,

and cost.

INSTRUCTIONS TO TEACHER: For information on design factors, refer to Exploring the Construction Industry by Betts, Fannin, and Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Read the question carefully and circle the correct number choices under the test item.

Which of the following are considered design factors?

(A.) Function

B. Identifying needs

(C.) Safety

D. Developing ideas

(E.) Maintenance

(F.) Appearance

G. Selecting the best design

(H.) Cost

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 019 01. Determine the type or types of foundation needed at a given site.	019 Identify foundation types (bearing surface, footings, upright supports). SKILLS: Identify Determine List Demonstrate Describe	ELEMENTARY SCIENCE Grades 4-6 (Earth and Space) 4.01 Describe the three basic rock types found in the earth: sedimentary, metamorphic, and igneous 5.01 Explain how water is an agent of soil formation such as the breaking of rocks 5.02 Describe how water causes soil erosion EARTH SCIENCE Grades 8-10 (Geology) 1.03 Identify/describe several common rock forming materials 2.01 Recognize several common types of igneous rock 2.03 Describe the principal landforms resulting from igneous processes 3.01 Explain the difference between physical and chemical weathering 3.02 Explain that weathering takes place at the interface between the rock and the surrounding environment 5.01 Describe the basic structure of water tables and related features such as springs, lakes, and swamps 5.02 Explain how water moves through the earth and describe the basic concept of permeability 6.01 Give several examples of gravity moving material downhill 6.07 Describe how sedimentary rocks are formed by compaction and cementation of sediment 6.08 Explain and give examples of several landforms formed by depositional processes

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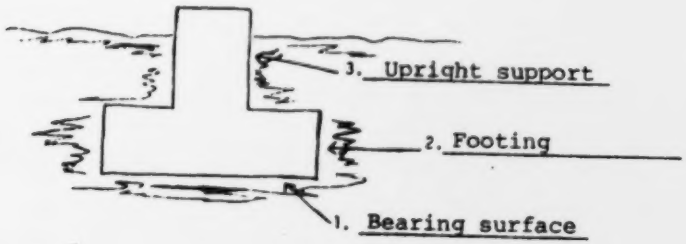
VOCATIONAL EDUCATION COURSE Construction

019

INSTRUCTIONS TO STUDENTS: Write the correct name of each foundation part next to the corresponding number under the drawing of the foundation below.



INSTRUCTIONS TO STUDENTS: Select from the following list the names of the parts of a foundation. Underline your choices.

1. Footing
2. Pile
3. Slab
4. Bearing Surface
5. Spread
6. Upright Support
7. Rocks

INSTRUCTIONS TO STUDENTS: Read test items "A" and "B" carefully and write the correct answers in the spaces provided under each statement.

This test item concerns identifying and describing footing types.

A. Identify the following footing types:

1. Spread footing

2. Slab/raft footing

3. Pile footing

B. Describe the following types of footings:

1. The spread footing is a concrete pad which may be long and narrow that goes under a wall, or it could be a square or rectangular and go under a pier or post

2. A slab footing spreads the structure's weight over a large surface

3. Pile footing (s) are like stilts. They are driven through soft surfaces into a firm surface

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 020 01. Determine the type of foundation structure for a given sight. 02. Explain construction processes needed to complete 01. 03. Utilize "hands on" activity in the construction of a "model" project.	020 Describe the steps and process for building foundation walls. SKILLS: Describe Explain Measure Demonstrate Identify	ELEMENTARY SCIENCE Grades 4-6 (Matter and Energy) 2.01 Give characteristics of different kinds of matter such as wood, glass, metal, and cloth after a laboratory exercise dealing with a variety of materials 8.01 Give properties of some common elements 16.02 Identify substances which are mixtures and compounds (Earth and Science) 4.01 Describe the three basic rock types found in the earth: sedimentary, metamorphic, and igneous EARTH SCIENCE Grades 8-10 (Geology) 1.03 Identify/describe several common rock-forming materials 2.01 Recognize several common types of igneous rock 2.03 Describe the principal landforms resulting from igneous processes 6.09 Recognize several common types of sedimentary rock 8.01 Recognize several types of metamorphic rocks PHYSICAL SCIENCE Grades 8-12 4.01 Demonstrate a knowledge of the basic units of length, mass, volume, and temperature in the SI metric system when given measurement problems 4.01 Identify compounds, mixtures and elements when given a list including some of all

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VOCATIONAL EDUCATION COURSE Construction

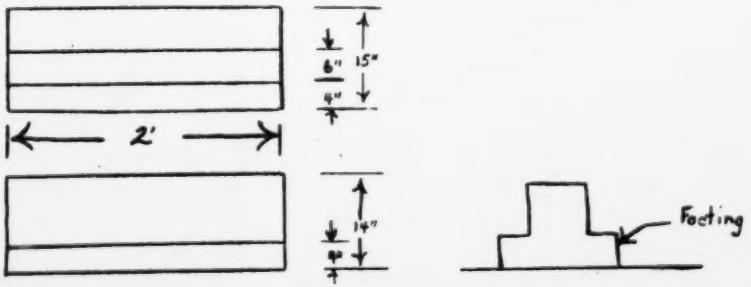
020

INSTRUCTIONS TO STUDENTS: Write the steps for building a foundation wall in the spaces provided.

Prepare bearing surface, build forms,
set reinforcement, mix and pour concrete,
finish and cure concrete, remove forms,
and finish concrete surfaces are the steps that should be followed when building a foundation wall.

INSTRUCTIONS TO STUDENTS: Construct the concrete form drawn under the test item below using 5/8"x4x4 plywood, and number 2 reinforcement rods. After completing this activity, give your tools and concrete foundation wall form to the teacher. The number 2 reinforcement rods should be installed 2" from the bottom of the footing and be 5" on center.

This test item concerns building a concrete foundation wall form with reinforcements. Construct the following concrete foundation wall form using number 2 reinforcement rods.



The concrete form should have the measurements included in the drawing in the test item. The number 2 reinforcement rods should be installed 2' from the bottom of the form and be 5" on center.

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 023 01. Identify common pipe types and sizes. 02. Plan plumbing system properly.	023 Identify plumbing systems (cold and hot water, natural gas, fire protection, sewage removal, storm drainage, heating and cooling). SKILLS: Identify State Describe Classify List	ELEMENTARY SCIENCE Grades 4-6 (Introduction to Science) 1.01 Suggest ways of finding a solution(s) of a given science problem by using a scientific method (Living Things) 6.01 Discriminate between good and bad health practices 6.02 Describe how disease-causing organisms enter the body such as entry through water, food, air, and skin 7.06 Identify one or more of the ways people have harmed the environment 7.07 Identify one or more ways in which individual citizens can help protect the environment (Matter and Energy) 2.01 Give characteristics of different kinds of matter such as wood, glass, metal, and cloth after a laboratory exercise dealing with a variety of materials 3.01 Describe properties such as color,, shape, weight, and texture of given objects 4.02 State that boiling water is going from a liquid to the gaseous state 4.03 Classify a given substance according to its present state of matter 13.02 List several common sources of energy such as petroleum products, wood, and wind

SELECTED TEACHER HELPS

VOCATIONAL EDUCATION COURSE Construction

023

INSTRUCTIONS TO TEACHER: For information concerning a plumbing system, refer to Exploring the Construction Industry by Betts, Fannin, & Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Circle the numbers next to the items that are part of a plumbing system.

Which of the following are part of a plumbing system?

1. Cutting
2. Cold water
3. Hot water
4. Steam for heat
5. Assembling
6. Natural gas
7. Fire protection
8. Gravity
9. Sewage removal
10. Storm drainage

INSTRUCTIONS TO TEACHER: For information concerning plumbing, refer to Exploring the Construction Industry by Betts, Fannin, & Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Complete the test item below by writing the correct words in the spaces provided.

When planning a plumbing system, consideration should be given to room arrangement, pipe size, safety codes, and the use of gravity to carry away waste.

INSTRUCTIONS TO TEACHER: For information concerning a plumbing system, refer to Exploring the Construction Industry by Betts, Fannin, & Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Read the unfinished statement and write the words in the blank spaces that complete it correctly.

A plumbing system is made up of cold water, hot water, steam for heat, natural gas, fire protection, sewage removal, and storm drainage.

INSTRUCTIONS TO TEACHER: For information concerning a plumbing system, refer to Exploring the Construction Industry by Betts, Fannin, & Hauenstein published by McKnight and McKnight Publishing Company, 1976.

INSTRUCTIONS TO STUDENTS: Answer this test statement by writing the items that make up a plumbing system in the spaces provided.

List five items that are part of a plumbing system.

1. Cold water
2. hot water
3. Steam for heat
4. Natural gas
5. Fire protection
6. Sewage removal
7. Storm drainage

INSTRUCTIONS TO STUDENTS: Write the names of the plumbing pipes in the spaces next to the numbers that represent their sizes.

Cast iron	2" to 3" in diameter
Clay or Concrete	12" and larger in diameter
Copper	1/8" to 12" in diameter
Galvanized	1/8" to 12" in diameter and 20' long
Plastic	1/4" x 4" in diameter

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 024 01. Identify joining processes for different types of pipe. 02. Describe chemical reactions which occur when sweating soldering pipes.	024 Describe the plumbing installation process. SKILLS: Describe Identify List	ELEMENTARY SCIENCE Grades 4-6 (Matter and Energy) 2.01 Give characteristics of different kinds of matter such as wood, glass, metal, and cloth after a laboratory exercise dealing with a variety or materials 3.01 Describe properties such as color, shape, weight, and texture of given objects 22.01 List sources of heat for home heating 22.03 Explain how homes may be kept comfortable (cooler) during hot seasons through air conditioning and/or the use of insulation materials and storm doors and windows 24.01 Describe methods of conserving energy such as insulating, adjusting thermostats and wearing more clothes in winter (Earth and Space) 4.01 Describe the three basic rock types found in the earth: sedimentary, metamorphic, and igneous PHYSICAL SCIENCE Grades 8-12 (Inorganic Chemistry) 4.01 Identify compounds, mixtures, and elements when given a list including some of all 4.02 List two ways compounds differ from mixtures 10.01 Give examples of how reduction is used in purifying metals (Organic Chemistry) 3.01 Identify the processes of hydrogenation, cracking, alkylation, and polymerization as ways of altering organic compounds

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SELECTED TEACHER HELPS

VOCATIONAL EDUCATION COURSE Construction

024

INSTRUCTIONS TO TEACHER: For information on the plumbing installation process, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Complete the following statement by writing the correct words in the spaces provided.

The plumbing installation process involves rough plumbing, which is accomplished prior to covering the interior walls, and finish plumbing, which is accomplished when a structure nears completion.

INSTRUCTIONS TO TEACHER: For information on the plumbing installation process, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Answer the following statement by writing the correct information in the spaces provided.

Describe the rough and finish plumbing installation process.

rough involves installing the main supply lines, main sewer lines, and all branch piping prior to covering the interior walls of a structure. Finish plumbing plumbing installation process involves installing the main fixtures when a structure nears completion.

INSTRUCTIONS TO TEACHER: For information on the plumbing installation process, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Select the answer for the following statement by circling the best letter choice.

The plumbing installation process may be described as:

(A.) Rough and finish plumbing

B. Venting all plumbing facilities

C. Installing all plumbing facilities

D. Installing pipe

INSTRUCTIONS TO STUDENTS: Match the pipe types in Column "A" with appropriate descriptions in Column "B" by writing the letter choices in the spaces provided to the left of each pipe name.

Column A	Column B
C 1. Galvanized iron pipe	A. Pipes and fittings that may be threaded or unthreaded for soldered joints.
A 2. Copper pipe	B. Light weight non-corrosive pipes and fittings that are joined together with solvent cement.
B 3. Plastic pipe	C. Pipes and fittings that are threaded so that they can be screwed together.

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 025 01. Plan an electrical system for a specified construction project. 02. Determine power requirements, quantity of needed outlets to meet code and used requirements. 03. Determine safety of planned systems.	025 Identify factors to be considered in planning electrical systems for construction. SKILL: Demonstrate Identify Calculate List	PHYSICAL SCIENCE Grades 8-12 (Introduction to Physical Science 4.01 Demonstrate a knowledge of the basic units of length, mass, volume, and temperature in the SI metric system when given measurement problems (Electricity and Magnetism) 1.02 Identify conductors and insulators (nonconductors) when given a list of common objects 4.02 Identify the circuit with the lowest current flow when given diagrams of four circuits with only the resistance varying 7.01 Name and explain the function of three devices used to control and alter electricity such as rectifiers, transformers, etc. 9.01 Determine the number of kilowatt-hours consumed when given a diagram of the dial(s) on an electric meter 9.02 Calculate the cost of electrical energy when given the kilo-watt hour rates and electric meter readings at the first of two consecutive months 10.01 List common electrical devices that convert electrical energy into heat and light energy 11.01 List five ways of conserving electrical and heat energy in a home, business, or school, etc. (Heat) 3.01 Identify conduction, convection, or radiation when given a list containing examples of heat transfer

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VOCATIONAL EDUCATION COURSE Construction SELECTED TEACHER HELPS

025

INSTRUCTIONS TO TEACHER: For information on this test item, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Write the correct answers for Parts A, B, and C of the test item below in the spaces provided.

The factors that must be considered when planning an electrical system are:

A. Providing electrical power for fixed appliances.

B. Providing outlets at convenient locations for small appliances and lighting

C. Designing a safe electrical system

INSTRUCTIONS TO TEACHER: For information on this test item, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Identify from the following list the factors that should be considered when planning an electrical system by circling the correct letter choices.

A. Providing electrical power for fixed appliances.
B. The structure.
C. Providing outlets at convenient locations for small appliances and lighting.
D. The location of the structure.
E. Designing a safe electrical system.
F. The electrical persons.

INSTRUCTIONS TO TEACHER: For information on this test item, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Write the words in the spaces provided that complete the statement correctly.

Electrical systems should be planned so that they provide power for fixed appliances, outlets at convenient locations for small appliances and lighting, and safe operation.

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CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Construction

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY SCIENCE SKILL/CONCEPT	RELEVANT SCIENCE COMPETENCY INDICATORS
INDICATORS 028 01. Develop an awareness of availabe energy sources. 02. Demonstrate process of energy conversion of and solar energy to a harmless medium.	028 Identify emerging alternative energy sources for application in construction industry. SKILLS: Identify List State Describe	ELEMENTARY SCIENCE Grades 4-6 (Introduction to Science) 1.01 Suggest ways of finding solution(s) of a given science problem by using a scientific method (Living Things) 7.02 Identify the sun as [illegible] source of energy in [illegible] stem (Matter and Energy) 11.01 List forms of energy involved (chemical, electrical, heat, light) where interaction is occurring such as a "switch-on" flashlight 12.02 State at least five uses of energy such as heating home, running machinery, and transportation 13.01 Indicate that the primary source of energy is the sun after studying energy sources 13.02 List several common sources of energy such as petroleum products, wood, and wind 19.01 List several sources of heat such as the sun, friction, wood, and gas 22.01 List sources of heat for home heating 24.01 Describe methods of conserving energy such as insulating, adjusting thermostats and wearing more clothes in winter EARTH SCIENCE Grades 8-10 (The Atomspere) 2.01 Explain how light energy is converted into heat energy in the atmosphere

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VOCATIONAL EDUCATION COURSE Construction

028

INSTRUCTIONS TO TEACHER: For more information on solar energy, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Complete the following test item by writing the correct words in the spaces provided.

Two alternative emerging energy sources that have application for the construction industry are

wind and solar

INSTRUCTIONS TO TEACHER: For additional information, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Underline the most correct answers to the test item.

Two emerging sources of alternative energy are:

A. Electricity and coal
B. Wind and solar
C. Water and wood
D. Gas and oil

INSTRUCTIONS TO TEACHER: For more information on solar energy, refer to Introduction to Construction by Huth published by Delmar Publishers, 1980.

INSTRUCTIONS TO STUDENTS: Complete the following test item by writing the correct missing words.

The sun's solar energy and wind are two sources of alternative energy that have a lot of potential in the construction industry.

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